



A.D. 1854 . . . . . N° 1710.

SPECIFICATION

OF

MAURICE ATKINSON DAYLEY.

FURNACES.

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1855.







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## Furnaces.

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*(This Invention received Provisional Protection, but notice to proceed with the application for Letters Patent was not given within the time prescribed by the Act.)*

**PROVISIONAL SPECIFICATION** left by Maurice Atkinson Dayley at the Office of the Commissioners of Patents, with his Petition, on the 4th August 1854.

I, MAURICE ATKINSON DAYLEY, of London Street, Fitzroy Square, in the  
5 County of Middlesex, Professor of Ventilation, do hereby declare the nature of the said Invention for “IMPROVEMENTS IN FURNACES FOR THE PURPOSE OF CONSUMING SMOKE AND ECONOMIZING FUEL” to be as follows:—

My Invention of improvements in furnaces has for its object so to construct and arrange the parts of the fire-place of steam boilers, that the smoke  
10 given off from the fuel or combustible that is most recently thrown on the fire may be caused to pass through a mass of incandescent or ignited fuel, so that during the passage of the vapors through the ignited mass all the combustible and useful parts of such vapors may be burnt and consumed, thereby preventing the emission of smoke from the chimney, and effecting a considerable  
15 economy in fuel, as none of the useful parts will be allowed to escape from the fire-place into the flue. In adapting my improvements to a cylindrical steam boiler, for example, I propose to make the fire-place longer than usual, and to divide the lower part or ash-pit into two parts, by means of a partition, extending across the space and under the fire bars. At the further end of the fire-  
20 place or furnace I place another partition, which forms the end of the fire-place. It should be understood that this partition extends from the top of the fire-

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*Dayley's Improvements in Furnaces for Consuming Smoke, &c.*

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place down to the level of the fire bars, and that the former partition, which is considerably in advance of the other, extends from the under side of the fire bars downwards to the bottom of the ash-pit. Air, and also the vapors and smoke generated at the front part of the furnace and given off from the fresh fuel, are therefore obliged to descend and pass between the fire bars that are 5 in the rear of the first partition, and after passing under the second partition and traversing the flue will finally escape into the chimney. When the fuel in front is in a state of incandescence, and all the smoke or unconsumed carbon it is likely to give off has passed away, it must be pushed back on to the rear part of the furnace, and when fresh fuel is supplied to the furnace and begins 10 to give off smoke or combustible gases, these latter can only reach the flue by passing through the mass of incandescent or ignited fuel, and therefore all the smoke and gases must be consumed. I prefer that the partitions above mentioned should be hollow, for the purpose of containing water, and that they should communicate with the main body of the boiler, for the purpose of 15 keeping up a continuous circulation of water.

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